1.1 INTRODUCTION

This Final Environmental Impact Statement (FEIS) addresses the planned remediation of arsenic- and lead-impacted soils at the former DuPont Works site within the City of DuPont, Washington (Figure 1). This FEIS was prepared to address the State Environmental Policy Act (SEPA) issues associated with the planned remediation and comments received on the Draft EIS (DEIS). The Washington State Department of Ecology (Ecology) is the lead agency under SEPA, and the Weyerhaeuser Company (Weyerhaeuser) and the E.I. du Pont de Nemours & Company (DuPont) are the project proponents. Weyerhaeuser and DuPont are responsible for the cleanup.

The area of the remedial action (the project site) is within Parcel 1, an approximately 636-acre parcel, which is one of two parcels (Parcel 2 is approximately 205 acres) that comprise an approximately 841-acre tract (Figure 2). These parcels were the site of a former industrial explosives manufacturing facility operated by DuPont until 1976, when the facility was closed and decommissioned. The property was sold to Weyerhaeuser in 1976. Parcel 1 is still owned by Weyerhaeuser and ownership of Parcel 2 was transferred to Weyerhaeuser Real Estate Company (WRECO) following cleanup in 1999. The entire 841-acre property (Parcels 1 and 2) is known as the former DuPont Works site.

In 1985, Weyerhaeuser began studies to determine whether chemical contamination was present on the site. Based on the findings in those studies, the Weyerhaeuser and DuPont companies signed a Consent Decree in 1991 with Ecology, pursuant to the Model Toxics Control Act (MTCA). Under this Consent Decree, the companies agreed to implement remedial cleanup activities for the contaminated areas of the site. The alternatives considered for site remediation under the Consent Decree include development of a cap/containment facility (that could be developed later as an 18-hole golf course) as a means for isolating and managing contaminated soils on the site. This Consent Decree also includes provisions for interim actions, including removal of areas of contaminated "hot spots" of soil. Various areas within the former DuPont Works site were contaminated during the operation and decommissioning of the industrial explosives manufacturing facility. All of the areas have been evaluated to determine the extent and magnitude of the contamination (see discussion in Section 2.1.2) and some have already been cleaned up.

Parcel 1 is currently undeveloped, with the exception of a few remaining buildings from the former DuPont Works. The former DuPont Works at one time included more than 200 individual structures, along with storage tanks, standard and narrow-gauge rail lines, a road network, and utility systems. Many of the former buildings were removed during plant decommissioning by DuPont when the plant was closed in 1976. Other features have been removed, along with the removal of contaminated soil, during the interim source removal actions. The current uses of the site consist of security control, administrative and caretaker property maintenance, and environmental investigation and monitoring activities associated with the site remediation process.

Considerable remedial investigation field work has been completed to date. A draft remedial investigation report, draft risk assessment, and a draft feasibility study have been prepared. The draft site cleanup options presented in the feasibility study represent a complete assessment of

possible alternatives for the site. The alternatives described in Section 1.5 of this document warrant further consideration.

1.2 BACKGROUND ON CLEANUP AND SEPA

As stated, there have been numerous and substantial interim cleanups conducted within Parcel 1. Parcel 2 of the former DuPont Works site has been cleaned up to meet industrial cleanup standards. The cleanup of Parcel 2 was approved by Ecology, and this parcel was removed from the Hazardous Sites List in 1997 after an opportunity for public review and comment.

Review under SEPA is required for cleanups occurring under MTCA. State and local permits are not required for actions undertaken in association with MTCA, but Ecology must ensure that the substantive requirements of any permit that would normally be required for any activities occurring during the cleanup are met. Therefore, Ecology's role in ensuring such requirements is an action under SEPA.

As co-sponsors of this project proposal, the Weyerhaeuser Company and the DuPont Company propose remediating the site (Parcel 1), which would allow a variety of subsequent land uses in specific areas, such as a golf course commercial, industrial, or open space. This plan includes consolidating and capping/containing contaminated soil into specific locations that would be suitable for future development as an operational golf course. The plan to contain the contaminated soil under a cap resulted after an extensive review of reasonable cleanup alternatives (see the feasibility study discussion in Section 1.5 of this document) and after many years of discussions between Ecology and the companies. The golf course cap/containment facility has also been discussed in public forums for many years. Given the extent of the contamination and the large volume of impacted soil, capping appeared to be the most cost-effective and reasonable, but also protective, alternative.

In 1995, Weyerhaeuser and DuPont approached the City of DuPont about constructing a golf course as part of the cleanup activity for the site. Because the proposed location of the golf course was not completely consistent with the City's comprehensive plan, Weyerhaeuser eventually withdrew their request for the conditional land use permit. Under the proposed project, there is no land use-related action. Only the cleanup action is being evaluated in this FEIS at this time.

In the future, when land use permits are requested from the City and a firm proposal for site development exists, evaluation of these land uses will require environmental review under SEPA. The current FEIS evaluates only impacts associated with the cleanup and should not be viewed as a SEPA analysis for a golf course, commercial and/or industrial uses, and/or open space. Permits and other actions required to enable subsequent uses of the site must be addressed in a separate SEPA document.

1.3 OBJECTIVES

The overall objective for the FEIS is to analyze the impacts of and propose mitigation for the remedial action proposal. The purpose of the remedial action is to eliminate the potential for direct contact with soil that exceeds site-specific remediation levels for arsenic and lead in Parcel 1. As part of the remedial action, a golf course cap/containment facility is proposed over a portion of Parcel 1. The cap/containment facility would prevent direct exposure of human and

ecological receptors to soils with metals present in concentrations below the site-specific golf course remediation but above ecological risk levels.

1.4 PROPOSED ACTION

The trigger for this FEIS is issuance of a determination of significance (DS) by Ecology. Ecology will approve a Cleanup Action Plan in the future that will describe implementation of the preferred cleanup alternative. The results of the EIS will help determine which cleanup alternative is chosen.

Ecology has agreed that golf course development and operation would be compatible with the planned remediation of Parcel 1. In general, the remediation objectives for Parcel 1 involve isolating soils on the site that are contaminated with lead or arsenic. The contaminant migration pathway of concern is direct contact with the contaminants. Based on the applicants' proposed land uses for Parcel 1, the area within the golf course layout must be cleaned up to meet golf course remediation levels. Specifically, the concentration of contaminated soils placed under the golf course should not exceed the health risk levels appropriate for an adult golf course worker (golf course remediation levels), as established by Ecology.

The general method proposed to meet the remediation objectives is to consolidate contaminated soils within a minimum area of the golf course "footprint" (the collective outer boundary of the golf course [roughs, fairways, greens, etc.] arranged in their proposed configuration). The potential for direct contact would be minimized by placing a suitable cover over the contaminated soils. Suitable covers would include clean soils (those that meet Ecology's residential and ecological cleanup standards) with a minimum depth of 18 inches (12 inches of clean soil over 6 inches of clean gravel or 18 inches of clean soil over a permeable geotextile layer) from elsewhere on the site or from offsite sources. Public streets or roads would not be placed over contaminated soils, and underground utility lines would be located to avoid contaminated areas. Golf course fairways, roughs, tees, and greens would be developed over contaminated soils; however, an impermeable geomembrane layer and water collection system would be used in the tee and green areas instead of a permeable layer because of higher water use in these areas, consistent with standard golf course construction practices. Some of the contaminated soils to be covered would remain in their current location within the golf course footprint, while other soils would be relocated from other parts of the course layout or elsewhere on the site and covered during course development. The proposed remediation is estimated to be completed sometime after 2001.

1.5 ALTERNATIVES

The Department of Ecology has identified three alternatives, in addition to the proposed action, for consideration in this FEIS. The proposed action is identified as Alternative 1, which is the project proponents' preferred alternative. Under Alternative 1, the engineered golf course cap would be used as a containment cover for the placed (and in-place) contaminated soils, and soil scraping (excavation) with placement under selected golf course areas would be involved. No soils above the golf course remediation level would be placed under the golf course footprint; any soils above that level would be treated (by screening) and/or disposed offsite in an Ecology-approved landfill. Alternative 2 would consist of soil scraping (excavation) and removal of contaminated soils for offsite disposal; no cap/containment facility would occur under this

alternative. Alternative 3 would consist of construction of a golf course footprint and scraping (excavation). All excavated soils would be washed or dry screened. Following washing or dry screening, soils below golf course remediation levels would be placed under golf course fairways and soils above golf course remediation levels would be removed for offsite disposal. Besides the differences in volumes of soil to be treated and/or disposed and the presence or absence of a golf course cap, Alternatives 1, 2, and 3 differ only in the duration of work and cost. Alternative 4 is the no action alternative.

As part of the MTCA process, Weyerhaeuser and DuPont companies have investigated contamination associated with the production, maintenance, disposal, and decommissioning activities at the former DuPont Works site. The investigation involved collecting and analyzing thousands of samples of soil, groundwater, surface water, marine and freshwater sediments, and waste to characterize the extent and magnitude of contamination remaining onsite. Those same data have been used to evaluate various cleanup alternatives (called a feasibility study) and to evaluate the risk to both human health and the environment. All of the investigative and cleanup work conducted at the site is being conducted under a 1991 Consent Decree agreement between Ecology and the companies.

A feasibility study document is used to compare and contrast various cleanup alternatives. A feasibility study evaluates the various alternatives against an established set of criteria. An initial screening occurs to reduce the potentially large number of options to a smaller set of reasonable alternatives. The screening of alternatives is based on three criteria: effectiveness, implementability, and cost. Within each criterion is also a set of sub-criteria. The sub-criteria for effectiveness include: protection of human health and the environment; compliance with applicable, relevant, and appropriate requirements; long-term effectiveness; reduction in toxicity mobility and volume; and short-term effectiveness. Under the implementability criterion are two sub-criteria: operational implementability (ability to construct and operate the remedial alternative) and administrative feasibility (ability to obtain approvals, disposal facilities/companies, and equipment). Sub-criteria for cost include an evaluation of construction and treatment system operation, as well as long-term operation and maintenance. Incorporated within various cleanup alternatives for the proposed project was construction of a golf course cap/containment facility as part of the remediation (see Section 2.2 for more details). Section 2.3 provides a brief summary of alternatives identified in the feasibility study that were eliminated from further consideration.

1.6 SUMMARY OF CONSTRUCTION OF THE PROPOSED GOLF COURSE CAP/CONTAINMENT FACILITY

The construction of the cap/containment facility, including the cleanup (scraping) of the surrounding property, would be conducted under the direct oversight of Ecology. The proposed cap/containment facility would be located on land Weyerhaeuser wishes to promote for a future operational golf course. Lead- and arsenic-contaminated soils, which are less than or equal to the appropriate remediation level for placement within the footprint of land for the future golf course, will be covered with either an appropriate permeable geotextile layer and a minimum of 18 inches of clean soil or a minimum of 6 inches of gravel and 12 inches of clean soil overlain with a grass cover. The soil layer is a human health barrier, and the gravel or geotextile layer is an ecological barrier. Construction of a clubhouse, maintenance facilities, or other golf course amenities would not be constructed as part of the cleanup. When construction of the

cap/containment facility is completed, there would not yet be an operational golf course for public play. However, as part of the long-term operation and maintenance of the cap/containment facility, the grass cover would be required to be maintained to reduce erosion of the cap.

Any eventual owner/applicant proposing to develop the site as a golf course or any other use would need to conduct an environmental analysis of the potential impacts to the community and the environment resulting from any construction, operation, and maintenance of the proposed land use. Those impacts may include, but are not limited to, traffic, noise, surface and groundwater quality, air quality, and historic and cultural resources.

The proposed remediation of the property involves leaving contamination onsite, which limits future land uses. Uses that would result in unacceptable human or ecological exposures to residual contamination would not be allowed. The options for future land uses will be limited by the choices being made in the cleanup process.

1.7 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Based on the nature of the proposed action, the results of project scoping, and DEIS comments received, the environmental review process documented in this FEIS addresses the following elements of the environment:

- Surface water
- Groundwater
- Historic and cultural resources
- Environmental health
- Land use

For each of these five elements, Chapter 3 of this FEIS describes the affected environment, the anticipated impacts of the proposed alternatives, and potential mitigation measures that would avoid or reduce the identified impacts. Statements about whether there would or would not be significant unavoidable adverse impacts to each element are included at the end of each section in Chapter 3. Table 1-1 summarizes this FEIS with respect to impacts and potential mitigation measures (for a full discussion of impacts and mitigation under the environmental elements, please refer to Chapter 3).

Based on the expected construction and operation plans for the proposed alternatives, including mitigation measures, the projected impacts to surface water, groundwater, historic and cultural resources, environmental health, and land use would generally be insignificant (with mitigation) and would be essentially the same for all three action alternatives. If the proposed mitigation is followed, no significant unavoidable adverse impacts are anticipated for the elements analyzed, with the exception of a significant unavoidable adverse impact to environmental health (in the form of habitat reduction until the site develops) after site excavation.

Table 1-1

FORMER DUPONT WORKS SITE FINAL EIS
SUMMARY OF IMPACTS AND MITIGATION[a]

	ALTERNATIVE 1 PROPOSED ACTION	ALTERNATIVE 2 EXCAVATION AND OFFSITE DISPOSAL	ALTERNATIVE 3 EXCAVATION AND ONSITE TREATMENT (SOIL WASHING)
Surface Water			
Impacts	• Change in surface runoff characteristics and exposure to erosion due to: – vegetation clearing – temporary haul route building – mass excavation and placement • During cap construction, possible wind and stormwater impacts to soils in cap	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Mitigation	• Prepare Temporary Erosion/Sedimentation Control Plan (TESCP) and keep in place after construction • Have TESCP inspector or other qualified person present during site preparation activities • Submit Pollution Prevention Plan • Mulch or cover soil stockpiles (if necessary) • Collect runoff in appropriate containment facilities and either allow for infiltration or, if necessary, dispose in approved offsite facilities • Sediment ponds would be finished to or above final grade elevation, if necessary • Accidental spill response cleanup and notification procedures would be included in contractor agreements • Wet ponds (golf course footprint area) would be lined • Allow areas outside of golf course footprint to revegetate naturally	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Significant Unavoidable Adverse Impacts	• If mitigation is followed, none are anticipated	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Groundwater			
Impacts	• Potential for groundwater quality to be degraded as a result of spills, leaks, or other releases handled at remediation staging area • Transport of pollutants from future golf course operation to groundwater could occur without mitigation • Possible but minimal impact to surface water bodies from irrigation use (future golf course) if not mitigated	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Mitigation	• See Surface Water discussion above • Continue groundwater monitoring as part of ultimate site remediation • Implement strict operational and spill control practices at the remediation staging area • As part of cleanup action plan, prepare maintenance plan for cap/containment building	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Significant	• If mitigation is followed, none are anticipated	Same as Alternative 1	Same as Alternative 1

Table 1-1

FORMER DUPONT WORKS SITE FINAL EIS
SUMMARY OF IMPACTS AND MITIGATION[a]

	ALTERNATIVE 1 PROPOSED ACTION	ALTERNATIVE 2 EXCAVATION AND OFFSITE DISPOSAL	ALTERNATIVE 3 EXCAVATION AND ONSITE TREATMENT (SOIL WASHING)
Unavoidable Adverse Impacts			
	Historic and Cultural Resources		
Impacts	• Possible impacts to Sites 45-PI-63, 45-PI-66, 45-PI-70, 45-PI-73, 45-PI-75, and 45-PI-404 • Deeper burial of sites or artifacts not yet uncovered could result in impacts without mitigation	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Mitigation	• Develop an investigative/survey plan for properties to be excavated/cleared. Follow procedures outlined in archaeological and cultural resources protection plan currently in preparation • A professional archaeologist (in accordance with WAC 25-48) would monitor construction activities	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Mitigation (cont'd)	• All construction and field personnel will receive training in identification of cultural resources. This includes equipment operators and ground personnel directing them • Construction scraping activities will occur in lifts (approximately 6-8 inches at a time) to minimize impacts. Each lift will be examined for artifacts • If monitoring reveals any significant historic/cultural sites, agencies (including OAHP) would be notified and consultation would occur • Weyerhaeuser will maintain a barrier around Site 45-PI-55 and the site noted as off limits. Extra precautions will be taken during construction around the site as well as other sites that may have cultural resources. To be certain no human remains are in the vicinity of Site 45-PI-404, additional archaeological research will be scheduled in this area before construction begins • Existing memorandum of understanding and memoranda of agreements will be followed and/or amended as appropriate • Ecology will ensure documentation on prehistoric and historic sites is forwarded to OAHP on a regular basis, as needed. Documents and review processes will be updated or established respectively, as necessary		
Significant Unavoidable Adverse Impacts	• If mitigation is followed, none are anticipated	Same as Alternative 1	Same as Alternative 1
	Environmental Health		
Impacts	• Possible spread of noxious weeds during clearing activities • Dust would be generated during construction	Same as Alternative 1 (except no golf course)	Same as Alternative One with additional exposure possible during washing

Table 1-1

FORMER DUPONT WORKS SITE FINAL EIS
SUMMARY OF IMPACTS AND MITIGATION[a]

	ALTERNATIVE 1 PROPOSED ACTION	ALTERNATIVE 2 EXCAVATION AND OFFSITE DISPOSAL	ALTERNATIVE 3 EXCAVATION AND ONSITE TREATMENT (SOIL WASHING)
Impacts (cont'd)	• Haul route construction and removal of soil and vegetation will reduce habitat for plants and animals		and disposal processes. Possible low-level human exposure while spreading treated soil on the course and during exposure scenarios described for Alternative One.
Mitigation	• Exposure time for workers to soils with contaminants would be short and workers would wear protective equipment • Take precautionary measures to ensure noxious weeds are not spread • Allow area outside golf course footprint to revegetate naturally since land will be sold to companies who will develop properties • Dust control measures would be implemented during construction. To protect against changes in conditions during remediation activities, limited air monitoring will be conducted in the work zone and surrounding areas • Maintain a health and safety plan during construction and manage soils to eliminate health and ecological risks • Loss of habitat will occur until the site develops (gravel soil onsite is expected to contribute minimal amounts of sediment). Best Management Practices (BMPs) such as erosion and sedimentation control measures will be left in place after construction and monitored until no longer needed	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Significant Unavoidable Adverse Impacts	• If mitigation is followed, none are anticipated except for a loss of habitat until the site develops	Same as Alternative 1	Same as Alternative 1
Land Use			
Impacts	• The golf course footprint area is larger than the golf course proposed in the City of Dupont 1995 Comprehensive Plan • Part of the golf course footprint would extend into Town Center area proposed in Comprehensive Plan • Golf course footprint area would displace portion of area proposed for Town Center use and community park as well as commercial area • Restrictive covenant on site does not allow residential use, schools, daycares, parks, and recreational uses– except for golf courses and related amenities	Same as Alternative 1 (except no golf course)	Same as Alternative 1
Mitigation	• Future golf course that could be developed on golf course footprint needs to undergo City SEPA and permit processes		

Table 1-1

FORMER DUPONT WORKS SITE FINAL EIS
SUMMARY OF IMPACTS AND MITIGATION[a]

	ALTERNATIVE 1 PROPOSED ACTION	ALTERNATIVE 2 EXCAVATION AND OFFSITE DISPOSAL	ALTERNATIVE 3 EXCAVATION AND ONSITE TREATMENT (SOIL WASHING)
	• Proposed cap/containment facility, and revised land use and use restrictions need to be described in Comprehensive Plan • Weyerhaeuser and City should continue to coordinate planning efforts		
Significant Unavoidable Adverse Impacts	• If mitigation is followed, none are anticipated	Same as Alternative 1	Same as Alternative 1

Notes:

[a] This table is a summary of impacts and mitigation and is intended for that purpose only. For a more extensive discussion of impacts and mitigation,
please refer to the individual sections in Chapter 3 for each environmental element analyzed.

OAHP = State Office of Archaeology and Historic Preservation.
SEPA = State Environmental Policy Act